Undescended Testis

The Undescended Testis Theory and Management. Rozanski TA, Bloom DA. *Urol Clin North Am.* 1995;22:107–118

Cryptorchidism. Current Concepts. Gill B, Kogan S. *Pediatr Clin North Am.* 1997;44: 1211–1227

Pediatric Testicular Problems. Pillai SB, Besner GE. *Pediatr Clin North Am.* 1998; 45:813–830

Timing of Elective Surgery on the Genitalia of Male Children With Particular References to the Risks, Benefits, and Psychological Effects of Surgery, and Anesthesia. Section on Urology, American Academy of Pediatrics. *Pediatrics.* 1996;97:590–594

Undescended testis or cryptorchidism is the most common genitourinary disorder in boys. The true undescended testis has stopped along the pathway of normal descent. The ectopic testis is in an aberrant location, such as the base of the penis, the superficial inguinal pouch, the medial aspect of the upper thigh, or the contralateral scrotal sac.

The undescended testis is more common among preterm, low-birthweight, and twin infants. It can be associated with features of congenital, chromosomal, or intergender disorders. Cryptorchidism must be differentiated from the retractile testis, which is not in the scrotum but can be manipulated without tension into the scrotum. Retractile testes normally descend by puberty.

The testis usually begins its inguinal-scrotal descent at 28 weeks' gestation. Endocrine, mechanical, and neural factors are believed to play a role. After birth, as circulating maternal estrogens decrease, pituitary gonadotropins are stimulated. This produces a surge of testosterone, with levels peaking at 60 days. This event accounts for the testicular descent usually seen during the first 3 months of life. The hormonal surge is diminished or not present in boys who have cryptorchidism. After birth, infants should be re-evaluated for descent at 3 to 6 months. Few testes descend after this time.

During the physical examination, it is important to visually inspect for abnormalities such as a poorly developed scrotum or hypospadias. Hypospadias occurring with an undescended testis requires chromosomal testing to rule out an intergender disorder. If the testis is not palpable in the supine position, it is often helpful to examine the patient in the cross-legged (tailor) or squatting position. This tends to relax the cremasteric reflex, which will help make a retractile testis palpable. Warm compresses in the inguinal region may also help. Once in the scrotum, a retractile testis should not retract when released. If it does, further consultation is necessary. If an infant has bilateral undescended testes, possible diagnoses include anorchia, female adrenogenital syndrome, and hypothalamic-pituitary insufficiency. These infants require chromosome analysis and a complete endocrine and electrolyte evaluation.

Infertility and malignancy are associated with undescended testis. Normally descended and cryptorchid testes usually have identical histologies until age 1 year. Soon thereafter, testes begin to deteriorate. The contralateral descended testis also can exhibit germ cell loss and is at risk for malignancy.

Laparoscopy is widely used as the initial diagnostic test in boys who have nonpalpable testes. Orchiopexy usually is performed at about 1 year of age. The goals of orchiopexy include avoiding the psychological effects of an empty scrotum, enabling the undescended testis to be easily examined later in life, and attempting to preserve fertility. Hormonal therapy has played a part in the management of undescended testis in the past. Human chorionic gonadotropin (HCG) stimulates Leydig cells, which increases testosterone production. The success rate of hormonal treatment is associated with the initial position of the testis. Lower-positioned testes respond better to therapy. Large doses of HCG are associated with premature epiphyseal closure and accelerated secondary sexual characteristics (the latter usually recede after cessation of therapy). Because hormonal therapy often is not successful, orchipexy is the preferred treatment. It usually is performed by the second year of life.

Patricia Callaghan, MD
Children's National Medical Center
Washington, DC

Comment: Follow-up of the patient after orchiopexy is important because of the potential for infertility and tumorigenesis. Children should be re-evaluated after surgery for testis location and size. When pubertal, boys should be taught to perform monthly testicular self-examination. Testicular cancer usually occurs in the third and fourth decades of life. The risk of malignancy does not appear to be affected by orchiopexy, but the procedure allows earlier detection of testicular cancer by placing the testicle in an easily palpable location. Some have recommended postpubertal ultrasonography or biopsy for all men who have a history of cryptorchidism to address the 2% to 3% prevalence of carcinoma in situ.

Tina L. Cheng, MD, MPH
Associate Editor